

ENV-470 **Development engineering**

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Cursus	Sem.	Туре	Language of	English	
Energy Science and Technology	MA2, MA4	Opt.	teaching Credits 4 Withdrawal Unauthor Session Summer Semester Spring Exam During the	English	
Environmental Sciences and Engineering	MA2, MA4	Opt.		4 Unauthorized	
Minor in Engineering for sustainability	E	Opt.		Summer	
Minor in Integrated Design, Architecture and Sustainability	E	Opt.		Spring During the	
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Credits	4			
Withdrawal	Unauthorized			
Session	Summer			
Semester	Spring			
Exam	During the			
	semester			
Workload	120h			
Weeks	14			
Hours	4 weekly			
Lecture	2 weekly			
Practical	2 weekly			
work				
Number of				
positions				
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retirer de cette matière				

retirer de cette matière après le délai d'inscription.

Remark

Development Engineering: Innovation and Technologies in the Global South

Summary

This course teaches the fundamentals of technologies for development (Development Engineering) to design, pilot, and deploy appropriate, affordable and robust technologies to address sustainable development challenges and especially those related to extreme poverty in Low-income settings.

Content

Topics:

- Introduction to Development Engineering
- What is poverty?
- Sustainable development in the context of Low- and Middle-Income Countries
- Essential Technologies
- Road to Impact
- Product Value Chain
- Sustainable Business Model Canvas
- Development-Humanitarian-Peace Nexus

Keywords

Learning Outcomes

By the end of the course, the student must be able to:

- Identify essential technologies and how they contribute to sustainable development
- Analyze affordable, sustainable, and socially acceptable technology solutions, for development
- Elaborate the interlinkages between development, humanitarian action and peace promotion.
- Carry out Development engineering projects in an interdisciplinary manner, i.e. integrating the contributions and expertise of different disciplines.
- Propose sustainable and socially responsible business solutions, adapted to the specific context of Low and middle-income countries.
- Characterize underlying causes and effects of extreme poverty, faced by emerging and developing countries.

Transversal skills

- Demonstrate the capacity for critical thinking
- Access and evaluate appropriate sources of information.
- Identify the different roles that are involved in well-functioning teams and assume different roles, including leadership roles.
- Give feedback (critique) in an appropriate fashion.

Teaching methods

Lectures (100% in English) flipped classroom, guest lectures, group work/presentation, recommended reading list.

Expected student activities

Homework, group work and presentation, mandatory watching of MOOC videos.

Assessment methods

During the semester

- Group work1: critical assessment of a technology (30%)
- Group work2: Entrepreneurial pitch presentation, plus written assignment. (40%)
- MCQ written exam (30%)

Supervision

Others

Teachers and teaching assistants will be available to guide students in their various group works.

Resources

Bibliography

The bibliography will be provided at the beginning of the course.

Moodle Link

https://go.epfl.ch/ENV-470